The 411 on

NUS Computer Science

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Y3, Computer Science
About me

- Incoming Y3, CS + Math + USP (NUSC???)
- Machine Learning Researcher (Turing Programme)
- TA for introductory AI/ML mods (CS3244, CS2109S)

More about me: rish-16.github.io
Overview

- **Computer Science at NUS**
  - What to expect
  - What you will learn
  - Basic prereqs
  - Some numbers
  - Common mods in Y1
  - SU-ing mods
  - Academic plans
  - Special Programs in CS
  - Supplementing your degree

- **Selecting Mods**
  - ModReg
  - NUSMods

- **Internships**
  - Disclaimers and Notes
  - Outside the classroom
  - Tools
What to expect

Negative synonyms

- Mentally draining
- Challenging
- Time-consuming
- Dry
- Abstract
- Information overload
- Messy

Positive synonyms

- Feeling of power
- Freedom of choice
- Exciting
- Fresh
- Applicable to life
- Practical
- High utility
What you will learn

- How to think 🤔
- How to solve problems 🧠
- How to manage time, resources, and life simultaneously ⌛
- How to write code and (hopefully) build apps 📲👾
- How to get where you want to be in life (financially, socially, career-wise, etc.) 😊
Prerequisites

- Math (calculus, linear algebra)
- Ability to think
- Perseverance
- Strong motivator(s)
  - Passion, Interest, Strong Curiosity, Family, Friends, Money*

* not recommended but **100% valid**
What is your programming background?

- 50.8% I am a programmer and I program regularly
- 26% I have had very limited exposure to programming before coming to NUS
- 20.3% I have moderate programming experience before coming to NUS
- 26% I never wrote a program before coming to NUS
- I’d rather not say

585 responses
Tips from Prof. Henz

- To the
  - **Less experienced members**
    - Don’t feel scared or intimidated
    - Many are in the same boat (communal suffering helps!!)
  - **Experienced members**
    - Don’t get cocky just because you know how to code
    - I can assure you you’ll find it hard to catch up very quickly

- **First Principles-based Learning**
  - Don’t light a torch if you can’t handle fire
  - Gain a sound footing with the fundamentals before jumping to the “cool stuff”
Classes at NUS SOC
Programme Structure

- **CS Foundation** (core mods)
  - Level 1k, 2k mods → ~48 MCs

- **CS Breadth & Depth** (advanced/focus area mods)
  - Level 3k, 4k, 5k mods → ~32 MCs

- **Industry Experience** (internships, attachments)
  - Choose between 2x 3-month **OR** 1x 6-month → 12 MCs total

- **Mathematics and Sciences**
  - CHS mods → ~8 MCs
International Timeline of Events

Year 1 (Novice)
Take intro mods, learn fundamentals, you learn nothing "cool"

Year 2 (Magician)
Take more core mods, you start to learn "cool" stuff

Year 3 (Sorcerer)
You learn marketable skills, start specialising in FAs, go for internships

Year 4 (Wizard)
You are almost ready to face the world, you're greasing your wheels
Mods I’ve Taken
Common Mods in Y1

- **CS1101S** (you can write an exemption test to get out of taking this)
  - How to think like a computer
  - How to decompose and solve problems
  - Learn to start writing code

- **CS1231S**
  - Mathematically rigorous (how to prove things)
  - CS is a subfield of (Discrete) Mathematics
  - Don’t forget what you learn here
Common Mods in Y1

- **MA1101R** (now called **MA2001**)
  - Linear Algebra (vectors, matrices, and more)
  - How to visualise stuff in 2D/3D

- **MA1521 / MA1102R** (now called **MA2002**)
  - Calculus (differentiation, integration)
  - Not really applicable to fundamental areas of Computing

- **IS1103** (now called **IS1108**)
  - Ethics *aka* how to NOT get sued in the future
  - Light workload (good for Sem2 actually)
Common Mods in Y1

- **CS2040S**
  - Data structures and algorithms (very important)
  - Build your toolkit to solve problems
  - Very heavy workload (take it with low-workload modules)

- **CS2030S** (taking the CS1101S exemption test lets you take this instead!)
  - The concept of **objects** in programming
  - How to structure and write readable, high quality code
Academic Plans

- You need *minimum* 18 MCs worth of mods per semester
  - You can apply for Leave of Absence (LOA) or workload waivers

- You **CAN** go with the flow and gradually figure things out
  - You **DO NOT** need to plan your next 3/4 years here
  - There is **NO** harm in taking it slowly
Academic Plans

● **BUT** having a rough idea of your trajectory is important and wise

● You **CAN** manage *multiple* extracurriculars and academics
  ○ You’re in college to become a better person
  ○ Don’t walk out a socially-inept dud
Fared badly in a mod? Fret not!

Mods without Prereqs? **DROP** them like a *Hot Pocket®*

It will **NOT** contribute to your GPA or CAP

You get **32 MCs** in your time at NUS
  - **20 MCs** for Year 1 (~5 mods)
  - **12 MCs** for the remainder (~3 mods)
Enrichment Programmes in CS

- **Orbital (CP2106)**
  - Done in Y1 Summer in pairs
  - Build a product through rounds of iterations, demos, and feedback
  - Tier-based grading and certification

- **NUS Overseas College** (study + entrepreneurship)
  - Silicon Valley, New York, Israel, Toronto, Stockholm, ... and now Paris
  - 1 year or 6 month sessions at a partner university
Enrichment Programmes in CS

- **SEP** (exchange)
  - Collaborate with a Professor on an interesting topic!
  - Could be a project, product, or a research paper

- **Independent Study Module** (CP3106)
Focus Area at SoC

- Algos & Theory
- Computer Graphics
- Computer Security
- Database Systems
- Software Engineering
- Info Retrieval
- Networks & Distributed Systems
- Parallel Computing
- Programming Languages
- Artificial Intelligence
Add Some Spice

- Popular minors/majors/degrees include,
  - Math (applied, pure, financial, quantitative – CHS)
  - Statistics (CHS)
  - Business Management (Biz)
  - Natural Sciences (physics, chemistry, biology – CHS)
  - FASS (Economics, Interactive Media Development, etc.)

- It’s worth your while getting out of your comfort zone

- Don’t take it to get a better job – take it because you like it
  - People **ALWAYS** end up dropping things they take up for superficial reasons
Joining a SOC club comes with the following benefits:

- Community → more friends
- Networking → more connections
- Constant learning → more knowledge
- Free Food / Swag → more coolness

There are **MANY** SOC-specific clubs:

- Computing Club (das me!! 😎)
- NUSHackers
- NUS GreyHats
- Games Development Group
- Google® Developer Student Club (DSC)
- *Many more where that came from*
There are **MANY** non-SOC clubs at NUS:

- NUS Comedy Club
- NUS ODAC
- NUS Voices
- NUS Skate
- NUS Dance
- NUS Cycling
- NUS Calisthenics
- *And a lot more Hall/RC CCAs*
You can totally balance extracurriculars with CS → you **CAN** have a life

- Head of Programmes, Freshmen Orientation Week (FOW), 2021
- Tech Lead, Computing Club, 2021-2022
- Korean Dance Team, 2020-2021 (yes, I dance)
- Ultimate Frisbee, 2022 (and occasionally badminton)

It boils down to managing time well and partitioning timete
sTudEnt lIfe
Selecting Mods
NUSMods and myEduRec

I can explain this to you in a very confusing manner, but it’s better if I give you a 🙌🏼 live demo 🙌🏼
Module Registration → myEduRec

- A platform to select modules to take the immediate semester
- Has multiple rounds of bidding (y’all may have heard sad stories from NTU/SMU 😞)
- Have alternatives and backup plans
- ModReg is used for ...
  - Registering for mods
  - Dropping (or SU-ing) mods
  - Appealing to take special mods/extra MCs in a semester
  - Viewing your classes, timings, transcripts, finances, and more
Internships
Disclaimers

- Getting an internship is **NOT** a priority for You
  - It’s **VERY NORMAL** not to get an internship in Year 1
  - Most students spend their first summer doing other things

- It’s **NORMAL** to get rejected by a billion places
  - Rejection is a **STRONG** motivator

- Though, it’s **GREAT** to apply (... and possibly fail)
I bounce between academia & industry

- Cool AI research with cool people from UWaterloo, MIT, A*, and NUS
- I’ve interned at Grab and a bunch of startups
Outside the Classroom

- What you do outside the classroom is what will get you a job 🏛
- Show **Demonstrated Interest** 💖
- If you think you 100% know what to do, you probably don’t 😞
  - Even experts are intimidated by applications / interviews
  - No one knows failure until they’ve bombed an interview
Demonstrated Interest

- **Proof that:**
  - You know what you’re doing
  - You know how to do it
  - You are independent and can learn on your own (spoonfeeding == 😝)
  - You ❤️ what you do

- **Shown through:**
  - Side projects 🛠
  - Blogs 📝
  - Constant learning 🧑
  - Online presence 💻
**Some Tools For Later**

- Set these up **ONLY** when you’re comfortable putting yourself out there
- Create a **resume** (approach seniors for resume tips or ask during Q&A later)
- Some tools CS students have ready by the time they are in Y2
  - GitHub
  - LinkedIn
  - Medium
  - Twitter (optional)
- Build yourself a nice **website** showcasing projects and work experience!
- Getting a job is a “metric flex fest” – have real impact in whatever you do
Enter Y1 Summer

- **Hot CS Student Summer 😎**: Enjoy “me time” before yet another grueling academic year begins. Lunch with friends, read a book, write, relax with family, hit the gym, etc.

- **Orbital 🪐**: Build a whole “flex-able” project with a buddy on *whatever* you can dream of. Get timely feedback and incrementally improve your skills / project.

- **Self-directed Learning**: Learn a new technology, tech stack, or CS paradigm. Build projects and build your portfolio.
Enter Y1 Summer

- **Camps**
  - Help out as an OGL or in OComm for orientation camps
  - This can be at the faculty (SOC) or at your Hall/RC

- **Internships**
  - Great place to learn about the industry and what it has to offer (and get $$)
  - You meet a lot of cool people from other universities/majors
  - Learn a lot from mentors and seniors
Closing Remarks
Pro-tips

- Keep track of your NUS mail inbox → lots of cool opportunities/events
- NUS gives you free access to Microsoft Office
- Buy a large monitor (if you can)
- Work part-time (if you can ... manage your academic schedule!!)
- Join a CCA (if you can)
- Go for an exchange semester (if you can)
- Rely on free printing services at SOC
- When in doubt, reach out to those around you!!!
Thank you!

Questions?

Thank you to the Profs and friends for their inputs on these slides!

Shameless Plugs

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Good Ol’ Fashioned Q&A

Drop your 🔥Burning Questions🔥 and I’ll answer them one by one.

ASK AWAY!!!